Scoping Review Series – 2018/19

Combination HIV Prevention for Gay and Bisexual Men

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EXECUTIVE SUMMARY

Combination prevention was described in a 2008 Lancet series on HIV prevention[1] as how biomedical, behavioural, and structural interventions could be paired with leadership, community involvement, and social justice to create "highly active HIV prevention."

Within two years, the approach was adopted by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the United Nations Programme on HIV/AIDS (UNAIDS). It has since been implemented with great success in Uganda, Thailand, Brazil, the Dominican Republic, India, and Rwanda.

In Canada, however, progress on implementing combination prevention of HIV has been mixed and uneven, particularly for gay and bisexual men. Gay and bisexual men continue to make up around half of new infections each year, and are estimated to be 131 times more likely to be HIV-positive than men who do not have sex with men. While combination prevention has been effective in reducing HIV rates among some key populations, such as people who inject drugs, rates remain high among gay and bisexual men.

Achieving similar HIV prevention success among gay and bisexual men requires expanding the range and scope of combination prevention strategies. Our current approach relies heavily on biomedical interventions which are highly efficacious. However, these interventions have the greatest impact when complemented with behavioural and structural interventions, which help ensure that HIV prevention knowledge, tools, and services reach communities effectively and equitably.

Types of Interventions

Biomedical interventions are technologies that reduce the biological risk of HIV transmission; examples include antiretroviral drugs, condoms and lubricants, and testing services for HIV and other sexually-transmitted and blood borne infections (STBBIs). Antiretroviral drugs are used as treatment for individuals living with HIV, which suppresses their viral load and effectively eliminates the risk of passing HIV to a partner. Antiretroviral drugs are also used as prevention by those who are HIV-negative (pre- and post-exposure prophylaxis, or PrEP and PEP).

Access to antiretrovirals, however, varies by province. Some provinces require copays or deductibles, distribute only through certain pharmacies, or limit the conditions under which a drug can be prescribed. In the context of treatment, these barriers may be significantly associated with decreases in adherence, which increases the risk of passing HIV.

Likewise, testing services vary significantly across Canada. Some areas offer a range of options; others offer very few. If a fuller suite were available, testing could be done in a clinic, at home, or at an event venue; administered by doctors, nurses, trained peers or community educators; initiated online or in person; and results could be instant or lab-analyzed, depending on the specific type of test used.

In Canada, this is not the case. Options for testing are highly uneven and dependent on the specific neighbourhood, city, and province with some regions such as the Atlantic lacking accessible rapid point-of-care testing (a test that has been in use elsewhere in Canada for over a decade). Currently available HIV testing options have also failed to reach some marginalized populations, as an estimated 20% of people living with HIV remain unaware of their infection.

Behavioural interventions target the individual practices that lead to HIV transmission or that can prevent HIV transmission. Behavioural interventions can include prevention strategies like having sex with people of the same HIV status, reducing the number of partners, or abstaining from sex, but are also about the ways in which people access and use biomedical

interventions like condoms, antiretrovirals and testing. This includes making sure that gay and bisexual men are aware and knowledgeable, and can access and properly use prevention technologies or strategies.

To close the gaps in knowledge and awareness, we need behavioural interventions that meet gay and bisexual men where they are at. This requires investing in culturally appropriate education, counselling, and support services that empower men to adopt practices that effectively prevent HIV transmission, including the consistent and correct use of prevention knowledge and tools. Examples include campaigns promoting safer sex, services such as PrEP delivery or HIV testing, and counselling programs to help people with substance-use and mental health issues.

Structural interventions are the cornerstone of combination prevention's holistic approach. They target the underlying social drivers that lead to HIV infection, like stigma, homophobia, poverty, and social violence. These drivers cause multiple, overlapping, and interacting epidemics among gay and bisexual men, including poor mental health, sexual compulsivity, trauma, harmful substance use, and intimate partner violence. Known as syndemics, these epidemics amplify and reinforce one another, and lead to increased chances of HIV being passed on.

They can be stopped, however. With social assistance, harm reduction, community empowerment, and other programs that reduce stigma and discrimination, the underlying social determinants can be improved, and can interrupt HIV transmission.

Holistic, Targeted, and Tailored: The Hallmarks of Combination Prevention

In order to optimize combination prevention, interventions must also be holistic, targeted, and tailored: holistic, as in concerned with more than the biology of HIV transmission; targeted to communities most affected by HIV; and tailored to meet the unique needs of diverse gay and bisexual men. Without such specificity in design and delivery, interventions may fail to address the real world context, undermining their potential impact for HIV prevention.

The key to developing interventions that are holistic, targeted, and tailored is a strong and supported role for community leaders and organizations in combination prevention. As advocates and service providers for people most affected by HIV, they have critical expertise to ensure that interventions address the lived experiences of gay and bisexual men. This includes taking an intersectional approach that recognizes and responds to the diverse needs of sub-groups within gay and bisexual communities, who may experience further marginalization as members of other minority groups (such as also being trans, a newcomer or refugee, or Indigenous or racialized as non-white).

Coordination, Partnership, Priorities: Rolling Out Combination Prevention

Effective combination prevention is not randomly reaching into a grab-bag of interventions. It requires coordination—between community leaders, policymakers, researchers, and front-line service providers. Community organizations lead interventions, policymakers fund them, researchers inform and evaluate, and front-line service providers deliver them. They must work together: to gather evidence, share expertise, prioritize based on effectiveness and community need, mobilize resources, and coordinate delivery.

In order to eliminate new HIV infections among all gay and bisexual men, we must act more strategically—with more investment in structural, community-led interventions—and comprehensively—by increasing access to antiretroviral drugs and new HIV testing options.

No single population-level intervention can prevent HIV infection. But together, and with combination prevention, we can end the HIV epidemic.

KEY RECOMMENDATIONS

Based on our review of the evidence on combination prevention among gay and bisexual men, we recommend:

- Antiretroviral medication be universally available, whether used therapeutically for people living with HIV or prophylactically for HIV-negative individuals—i.e., approved for use in every province and territory, distributed by any pharmacy, and free of charge to the patient.

- HIV testing technologies and services be significantly expanded, including investing in new testing options such as self-testing, as well as increasing access to existing rapid point of care tests.

- Funding more community-based and implementation science research to identify the most effective behavioural and structural interventions, as well as how to best deliver these interventions in combination within communities most affected by HIV.

- Dramatically expanding access to mental health services and health promotion, including programs and services specifically for gay and bisexual men.

- Scaling up harm-reduction efforts—i.e., distribute more safe-injection kits, open new supervised injection sites, and increase medication-assisted drug therapy.

- Funding new and expanded initiatives to reduce stigma and build resilience through interventions led by community-based organizations.

- Greater cooperation between policymakers and community leaders to address structural barriers that prevent community members from accessing prevention and healthcare services. This includes building program evaluation capacity in community organizations and increasing collaboration with researchers to close the knowledge-action gap.

- Tailoring health services for key sub-groups within gay and bisexual men's communities. This includes Indigenous and other men racialized as non-white, non-gay/bisexual-identified men who have sex with men, trans men, newcomers.

- Tailoring interventions to the unique needs of rural, suburban, and urban gay and bisexual men.

- Engaging gay and bisexual youth with sex education and other youth-focused interventions.

COMBINATION PREVENTION FOR GAY MEN

Rights-based, evidence-informed, and community-owned programmes that use a mix of biomedical, behavioural, and structural interventions, prioritized to meet the current HIV prevention needs of particular individuals and communities, so as to have the greatest sustained impact on reducing new HIV infections.

Biomedical Prevention

Transmission-targeted interventions that seek to reduce the probability of HIV transmission and acquisition. This includes, but is not limited to, the strategic distribution and promotion of HIV-testing and therapeutic and prophylactic antiretroviral drugs to reduce or eliminate the risk of HIV transmission or acquisition.

Behavioural Prevention

Person-centred interventions that seek to establish inclusive and affirming programs that aim to address behavioural vulnerabilities by helping communities and individuals establish strong sex-positive and inclusive sexual practices that empower them to navigate their sexual experiences safely.

Structural Intervention

System-changing interventions that empower individuals and communities by eliminating the underlying drivers of health inequity. These include but are not limited to efforts to promote fundamental human rights, stop stigma and homophobia, eliminate barriers to clinical and preventative care, and ensure equitable distribution of resources.

INTRODUCTION

The Combination Prevention Era

"The only broadly applicable way to prevent new HIV infections is to change behaviours that enable transmission of those infections." At least, so begins one 1998 commentary published under the elegantly simple title: Preventing HIV infection.[1] Following these words, the original publication consists of just six columns of text spread across two pages, outlining a comprehensive strategy for ending HIV. "Targeted education" reads one heading, "testing and follow-up counselling" reads another. One paragraph is dedicated to peer influence and community action, another to advertising and marketing. These were the principal strategies for preventing HIV at the height of the epidemic.

You might be surprised, however, to find among these standard prevention practices, calls for methadone substitution, clean-needle exchange programs, an end to abstinence-only sex education, and an expansion of anonymous HIV-testing—programs which apparently have been recognized as important to ending HIV for decades, but none of which, we grimly note, have been universally followed through on in Canada. Likewise, you might be amused by what's missing from this now 20-year-old commentary: no mentions of U=U or of PrEP.

In fact, with the exception of noting the importance of beginning treatment early, there is little mention of antiretroviral therapy at all. Of course, this omission is excusable given that antiretroviral therapy only became widely available to people living with HIV in 1996. Furthermore, the antiviral effects of Tenofovir disoproxil were first documented only a year prior to Coates & Collins's commentary.[2] Finally, it wouldn't be for another 8 years that the first published reports on the preventive benefits of treatment as prevention would emerge.[3]

Tenofovir disoproxil is a leading antiretroviral drug used in HIV treatment and is one of the active ingredients used in pre-exposure

But, fast forward to 2008 and you find yet another opening line worthy of a million and one citations: "No one thought 25 years ago that HIV prevention would be as difficult as it has proven to be."[4] Here too, we find the outline of an (updated) strategy for HIV prevention, this time under the title "Behavioural strategies to reduce HIV transmission: how to make them work better." To the best of our knowledge, this second example (an introduction to a Lancet series on HIV prevention) was the first to ever typeset the words "combination prevention" with regards to comprehensive biomedical, behavioural, and structural HIV prevention and was the beginning of an era in HIV prevention in which the key tools for HIV elimination were recognized but were not necessarily being leveraged for optimal impact. Herein, Coates & colleagues outlined how leadership, community involvement, behaviour change, STI treatment, social justice, and human rights could all be packaged with biomedical prevention strategies as part of an approach they described as "Highly active HIV prevention."

Within a year, the concept of combination prevention would be borrowed as the basis for The United States President's Emergency Plan for AIDS Relief (PEPFAR)'s 5-year global HIV prevention plan. "There is no single population level intervention that can prevent HIV infection," the plan reads. "A successful prevention program requires a combination of mutually reinforcing, continually evaluated interventions that are tailored to the needs and risks of different target populations."[5] Within another year, UNAIDS's (United Nations Programme on HIV/AIDS) 2009 Prevention Reference Group would outline a discussion paper

titled "Combination HIV Prevention: Tailoring and Coordinating Biomedical, Behavioural, and Structural Strategies to Reduce New HIV Infections."[6] At this meeting, Combination Prevention was given its first formal definition and defined as:

According to Coates et al. (2008), the term "highly active HIV prevention, was first coined by Professor King Holmes.
bit.ly/2KIBhED

> *"Rights-based, evidence-informed, and community-owned programmes that use a mix of biomedical, behavioural, and structural interventions, prioritized to meet the current HIV prevention needs of particular individuals and communities, so as to have the greatest sustained impact on reducing new infections."*

UNAIDS. "Combination HIV Prevention: Tailoring and Coordinating Biomedical, Behavioural and Structural Strategies to Reduce New HIV Infections." Sep 2010.
bit.ly/2pnomrC

Additionally, the UNAIDS's reference group identified several key features of combination prevention programs:

1. Tailored to national and local needs of the populations or groups most at risk of exposure and transmission;
2. Include a strategic mix of biomedical, behavioural, and structural approaches;
3. Multifaceted and reinforce behaviour change among individuals, within relationships, and throughout communities;
4. Prioritize investments strategically by engaging communities, private sectors, and governments;
5. Require, benefit from, and invest in enhanced partnerships and coordination; and
6. Flexible and adaptive as they respond to the emergence of new evidence and new tools.

Of course, while UNAIDS was working on outlining these characteristics, we can assume that an untold number of working groups, researchers, prevention specialists, and community organizers were all striving to conceptualize and develop a model of prevention that addresses the diverse and manifold needs of the global HIV epidemic. Thus, it was through these efforts that a new era in HIV prevention was born: The era of combination prevention.

Adapting Combination Prevention for Gay Men

Despite successful implementation of combination prevention in countries such as Uganda, Thailand, Brazil, the Dominican Republic, India, and Rwanda, PEPFAR (and several non-government organizations) recognized the need to provide technical guidance for HIV prevention among gay and bisexual men around the globe. Indeed, despite a near universal rallying of academics around the concept of combination prevention, applications of this strategy were not fully clarified when targeting the specific needs of key sub-populations.

The U.S. President's Emergency Plan for AIDS Relief (PEPFAR). Technical Guidance on Combination Prevention for Men who have Sex with Men. May 2011.
bit.ly/31r5tnM

This "second phase" of PEPFAR (i.e., the targeting of prevention strategies for specific at-risk populations) recognized that among gay and bisexual men, a variety of factors necessitated specialized guidance for interventions aiming to reduce HIV incidence among these men.[7] These included depression and other mental health issues, alcohol use, injection and non-injection drug use, history of physical or sexual abuse, sexual concurrency, sexual behaviours that effect risk, stigma, and of course, the negative effects of homophobia. While the factors giving rise to HIV in high-income countries mirror many of those outlined above, the resultant recommendations developed by PEPFAR were specifically tailored for low- and middle-income countries—which makes sense given PEPFAR's global mandate to reduce incidence of HIV/AIDS in the countries hardest hit by the epidemic. As such PEPFAR's six core elements of HIV-prevention among MSM included a range of services which have already been (at least in theory) available to Canadian gay and bisexual men for decades:

1. Community-based outreach;
2. Distribution of condoms and condom-compatible lubricants;
3. HIV counselling and testing;
4. Active linkage to health care and antiretroviral treatment;
5. Targeted information, education and communication; and
6. Sexually transmitted infection (STI) prevention, screening, and treatment.

In similar fashion, other reports from non-government organizations have been developed for "rights constrained environments"[8] or for specific regions such as Asia and the Pacific[9] or Latin America and the Caribbean.[10] Yet, despite the proliferation of these guidelines there remains a need for context-specific evaluations of HIV prevention among gay and bisexual men in Canada. Indeed, although continued funding and reinforcement of the core components outlined above are clearly necessary to address the ongoing HIV epidemic among gay and bisexual men, persistent disparities in HIV incidence in this population makes it obvious that these alone have not led to the full eradication of HIV. All the while, successful reductions in HIV among other key populations only underscores the need to better adapt combination prevention strategies to the needs of gay and bisexual men.

Holistic, Tailored, and Targeted Combination Prevention

Public Health Agency of Canada. "Population-Specific HIV/AIDS Status Report: Gay, Bisexual, and Other Men Who Have Sex with Men." 2013.
bit.ly/2MFDjBg

Recognizing these needs along with the challenges of meeting national and international goals for HIV prevention among gay and bisexual men, the Public Health Agency of Canada (PHAC) published a population-specific HIV/AIDS report in 2013.[11] Within this report, the authors outlined the factors contributing to vulnerability among gay and bisexual men; and within just 18 pages of this 116 page report they cover everything from socioeconomic status to mental health. In doing so, the Canadian report highlights a syndemic production of HIV risk, which it defines as "multiple, interacting epidemics in communities of gay and bisexual men." The report also describes the emergence of "a movement in Canada toward a holistic approach to the health of gay and bisexual men, which goes beyond an exclusive focus on HIV [and] ... acknowledges the broader health issues that gay and bisexual men ... face beyond HIV/AIDS." Thus reflecting, "an approach to HIV prevention that situates vulnerability to, and resilience against, HIV within the broader context of men's lives." Unfortunately, the document goes on to say that "a thorough overview of this holistic approach is outside the scope of this report."

British Columbia Provincial Health Officer. "HIV, Stigma and Society: Tackling a Complex Epidemic and Renewing HIV Prevention for Gay and Bisexual Men in British Columbia." Annual Report. 2014
bit.ly/2GU4Rim

Yet, approaching a holistic conception of gay and bisexual men's health, the literature examining our sexual health has rapidly expanded with studies underscoring the multifactorial nature of HIV transmission. These studies have shown that in addition to fundamental disease transmission dynamics—such as viral exposure (e.g., ejaculate or anal fluids), sexual network density (e.g., more concurrent sexual partners), and duration of the infectious period (e.g., not being tested and having viral suppression)—the HIV epidemic's sustained impact on gay and bisexual men is a byproduct of social oppression, stigma, and homophobia.[12–17] In turn, subsequent poor mental health, compounded by high levels of poly-substance use, has been shown to drive greater HIV transmission.[18] Other syndemic factors have also been identified as contributing to greater HIV transmission.[19–21] Given these findings, it is increasingly clear that combination prevention for gay and bisexual men must account for more than just the proximal individual-level factors associated with HIV transmission. Indeed, if we're going to end HIV transmission among gay and bisexual men, then the haphazard conglomeration of reactive interventions that have come to define the public health response to HIV must be replaced by a holistic, tailored, and targeted effort that coordinates the actions of health researchers, policy makers, community leaders, and front-line service providers.

THEORIES OF COMBINATION PREVENTION

Attempting to cope with the complex and multifactorial nature of HIV transmission among gay and bisexual men, researchers have relied on several inter-related theories—with each boasting strong empirical support. Generally speaking, the theories outlined below offer convincing rationale for combination prevention. Together, they create an airtight case for tailored and targeted biomedical, behavioural, and structural intervention.

Syndemics Theory

Syndemics theory describes how multiple co-occurring health conditions interact to cause adverse effects within a population. Often a result of health inequity driven by poverty, stigmatization, social stress, or social violence, the presence of syndemic disease underscores the importance of structural interventions that account for multi-morbid health outcomes. For gay and bisexual men, syndemic HIV is often studied along with mental health, substance use, sexual compulsivity, childhood trauma, and intimate partner violence.

bit.ly/2OOsUWr

Minority Stress Theory

Minority stress theory describes chronically high levels of stress and resultant poor health that emerges from increased exposure to distal (e.g., stigmatization, prejudice, and discrimination) and proximal (e.g., fear, internalized homophobia) stressors among minorities. While minorities may cope and build resilience to minority stress, this theory nevertheless highlights an important mechanism whereby social stigma and oppression negatively impact members of minority groups.

bit.ly/2y9B2WX

Life Course Theory

Life course theory describes the unfolding of key events, experiences, and identities across a person's life—highlighting how past experiences, present context, and future expectations shape health outcomes. In so doing, the life course approach emphasizes the importance of historical and social context across an individual's life. Among gay and bisexual men, this approach often focuses on the unfolding of early and liminal experiences such as one's childhood or "coming out" process or adverse childhood experiences.

bit.ly/2MYL4ST

Social Ecological Theory

Social ecological theory describes the interaction between four ecological layers that facilitate and reinforce the occurrence of health outcomes. The first level focuses on person-level factors (e.g., age); the second level focuses on relationship dynamics with close friends, relatives, or partners (e.g., self-efficacy); the third level focuses on specific venues or settings in which health outcomes arise (e.g., social isolation, availability of harm reduction supplies); and the fourth focuses on broad societal factors (e.g., legal and economic factors, policies, stigma).

bit.ly/2yTQlTG

Intersectionality Theory

Emerging from black feminist scholarship, Intersectionality theory describes the interaction between multiple person-level characteristics or identities such as class, race, sexual orientation, age, disability, and gender. Within this theoretical framework, it is understood that multiple overlapping stigmatized identities may cut off vectors of social support and resilience—resulting in systemic oppression and power imbalance.

bit.ly/2Ho8PWY

"There is no single population level intervention that can prevent HIV infection. A successful prevention program requires a combination of mutually reinforcing, continually evaluated interventions that are tailored to the needs and risks of different target populations."

COMBINATION PREVENTION: A PRIMER

Biomedical Prevention

Therapeutic Antiretroviral Therapy

As combination prevention describes the intersection of biomedical, behavioural, and structural interventions, we cannot begin to describe how combination prevention is being utilized for HIV prevention among gay and bisexual men in Canada without first discussing how people access antiretroviral therapy and prophylactic drugs. To start, it's worth reminding ourselves that there is no single "Canadian Health Care System" in Canada and that enrollment requirements and eligibility vary between provinces.

CATIE, one of Canada's leading sources for information on HIV, maintains an up to date module describing the various drug coverage and benefits programs across Canada's thirteen provinces and territories.
bit.ly/2GYXsPb

Indeed, health care in Canada is a patchwork of systems, with each province and territory governing their own policies, procedures, and practices. This is true also, when it comes to coverage of antiretroviral drugs for HIV treatment.[22] For example, in Alberta, the Specialized High Cost Program managed by the Alberta Health Care Insurance Plan is responsible for administering antiretrovirals to all people living with HIV. While antiretroviral drugs must be shipped to individuals or dispensed from selected pharmacies in Alberta, there are no out-of-pocket costs regardless of age or income.[23] The same can be said of British Columbia, the Northwest Territories, Nunavut, Prince Edward Island, and Saskatchewan.[23] On the other hand, Manitoba, Ontario, Quebec, and the Yukon require a deductible be paid by ART users.[23] These deductibles are usually based on either a fixed dollar amount (such as is the case in the Yukon) or on a percent of income (such as is the case in Ontario). Likewise, several jurisdictions, including New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, and Quebec require co-payments for ART prescriptions.[23]

Deductibles are costs individuals must pay before insurance providers contribute and copays are costs associated with receiving specific services.

Copayments are usually determined based on a fixed amount (such as is the case with Ontario) or a percentage of the total drug cost (such as is the case in New Brunswick). In jurisdictions that require co-pays or deductibles, social assistance programs for seniors, children, people with disabilities, low-income residents, and other key groups also provide a safety net to ensure access to antiretroviral therapy.[23] For those not covered by local programs (such as eligible First Nations or Inuit Peoples or for Military and Police servicemen), there are also several federal drug prescription programs including those administered by the Non-Insured Health Benefits (NIHB) Program, the Interim Federal Health (IGH) Program, Canadian Forces Health Services (CFHS), and Veterans Affairs Canada (VAC).[23] Furthermore, each province or territory also has the freedom to decide which pharmacies can dispense antiretroviral drugs and the conditions under which each drug can be prescribed.[23] These restrictions can dramatically impact access to prophylactic and therapeutic antiretroviral therapies.

Happe et al. "A systematic literature review assessing the directional impact of managed care formulary restrictions on medication adherence, clinical outcomes, economic outcomes, and health care resource utilization."
bit.ly/2TjABCz

Based on the available evidence, it isn't entirely clear what impact each of these specific schemes have on gay and bisexual men's initiation of and adherence to antiretroviral therapy. Nevertheless, several literature reviews show that increasing patient share of medication costs and other formulary restrictions are significantly associated with decreases in adherence—strongly supporting arguments for free distribution of HIV medications across Canada.[24,25] Case studies supporting the removal of formulary restrictions can also be found in Canada. For example, the success of the Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS) and Treatment as Prevention (TasP) programs provide perhaps the best documented evidence available. Administered by the B.C. Centre for Excellence in HIV/

AIDS, these interventions have effectively demonstrated that the expansion of antiretroviral drugs are associated with sustained decreases in HIV/AIDS morbidity, mortality, and transmission.[26] We thus anticipate that the adoption of free distribution programs in other jurisdictions (such as has been recently undertaken in Saskatchewan) will likewise result in improved care for people living with HIV. Furthermore, because people living with HIV and who have a suppressed or undetectable viral load cannot transmit HIV,[27] these programs are also important to reducing HIV incidence.

Prophylactic Antiretroviral Therapy

UNAIDS. "90-90-90: An Ambitious treatment target to help end the AIDS epidemic." 2017.
bit.ly/2TsCiOq

Though Canada has made significant progress towards achieving its 90-90-90 goals, it has become apparent that simply expanding access to ART is not enough to end HIV transmission. Indeed, the most recent estimates from nationwide data in 2016 show that 86% (78–94%) of people living with HIV are diagnosed, 81% (75–87%) percent of those diagnosed are on treatment, and 91% (87–95%) of those on treatment are virally suppressed.[28] While impressive compared with other countries, this translates to only 70% of people living with HIV being on treatment, only 63% being virally suppressed, and somewhere in the range of 2,165 (1,200–3,150) new HIV infections per year. We should also note that approximately 56% (n = 1,202) of these yearly infections continue to occur among gay and bisexual men.[28] While these estimates may be slightly out of date due to the understandable delay in releasing national surveillance estimates, they nonetheless underscore the need for additional prophylactic strategies.

Okwundu et al. "Antiretroviral pre-exposure prophylaxis (PrEP) for preventing HIV in high-risk individuals." Cochrane Review. 2012.
bit.ly/2KtpX9E

Young et al. "Antiretroviral post-exposure prophylaxis (PEP) for occupational HIV exposure." Cochrane Review. 2007.
bit.ly/2KCfJTg

Fortunately, antiretroviral therapies which are highly effective at preventing HIV acquisition[29] have been approved for use as a prophylactic by the Canadian Government. Taking the form of either post-exposure prophylaxis (PEP) or pre-exposure prophylaxis (PrEP), this strategy has emerged as key tool for reaching Canada's goal to end HIV transmission.[30] The first of these, PEP, was discovered in the early 1990's with studies showing a significant reduction in the risk of transmission if antiretroviral were administered soon after introduction to the HIV virus. Meta-analyses of primate and human studies suggest that PEP reduces the risk of HIV acquisition by approximately 89%.[31,32] Expanding the preventative benefits of antiretroviral drugs, the efficacy of daily oral PrEP for preventing HIV acquisition was first suggested in 2010 with successful reductions in the risk of HIV acquisition among 2,499 men in the iPrEx trial. In the 2016 open label PROUD trial, PrEP was found to reduce seroconversions by 86%.[33]

Tan et al. "Canadian Guideline on HIV pre-exposure prophylaxis and non-occupational post-exposure prophylaxis." CMAJ. 2017
bit.ly/2z3KqLX

Anglemyer et al. "Antiretroviral therapy for prevention of HIV transmission in HIV-discordant couples." Cochrane Review. 2013.
bit.ly/2ZREEsk

Rodger et al. "Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples." JAMA. 2016.
bit.ly/2VJLlhk

Yet, despite their effectiveness, access to PEP and PrEP varies within and between provinces. For PrEP the policy landscape for drug access and insurance coverage is rapidly changing.[34(p)] Currently, PrEP is covered (at least to some extent, for some qualifying individuals) in Alberta (announced September 2018), British Columbia (January 2018), New Brunswick, Nova Scotia (July 2018), Ontario (September 2017), Quebec (February 2016), and Saskatchewan (April 2018). In some cases, where PrEP is available through the public health system,[30,35] clinical prescriptions for PrEP require a copay or are only made accessible for at-risk individuals, such as those who inject drugs and have multiple sex partners. Other restrictions are made based on personal or household income—with drug insurance coverage given to only those who can demonstrate financial hardship. For individuals without coverage, costs for generic drugs are currently around $250.00 CAD each month (For updated costs, visit get-prep.com/prep-costs). Research is currently underway to determine how the various pricing and drug coverage schemes impact gay and bisexual men's self-efficacy and

motivations to use PrEP. In regions where neither Pharmacare, nor insurance will cover the costs for PrEP, community leaders and organizations have provided guidelines to help individuals navigate health systems and access low-cost generics. See, for example, the Davie Buyer's Club, which helped individuals in British Columbia access PrEP prior to the province adding PrEP to its drug formulary.

Condoms and Lubricants

In addition to medication-based biomedical prevention strategies, condom and lube distribution have long been a mainstay of community-based programming. While the effectiveness of these efforts for HIV prevention is generally based on low-quality evidence,[36,37] they are believed to be cost-effective in reducing the incidence of other STIs —particularly for young people.[38] By making condoms available in public spaces (e.g., clinics, community centers) and at sex-on-premises venues (e.g., bars, bathhouses), these programs undoubtedly increase condom availability and promote social norms that are more amenable to condom use. However, it is unclear whether the efficacy of these distribution programs has been sustained with the advent of online dating. Indeed, as more and more gay and bisexual men meet their sexual partners online, existing distribution networks for free condoms and lubricant may need to adapt if they are to remain relevant to gay and bisexual men.

HIV Testing

At the population level, HIV-testing is another effective HIV prevention strategy. A variety of testing options are available: Early and rapid tests can detect new HIV infections in as little as 14 days. Rapid point of care tests can provide test results in only a few minutes. Anonymous HIV testing can ensure that participants are able to ascertain their status without fear of being identified. Finally, dried blood spot testing has begun to open the way for at-home or venue based testing. Which test administered is largely dependent on the availability of the test, but also based on the specific needs of patients. A number of factors influence which test is most appropriate for a given situation, including those related to privacy, desired accuracy, and sexual history.

Read more about these and other HIV testing technologies by visiting CATIE's page on "HIV Testing Technologies."
bit.ly/2MPR1Bv

Awareness and Uptake of Biomedical Prevention

In addition to helping individuals overcome the financial and other logistical challenges to accessing biomedical prevention technologies, community-based organizations have also formed the front-line response to promoting gay and bisexual men's awareness and uptake of these interventions. While not solely focused on biomedical prevention efforts, two salient examples relevant to PrEP and biomedical prevention include The Gay Men's Sexual Health Alliance's "The Sex You Want" campaign—which produced sex-positive educational videos and web-content related to PEP, PrEP, viral load undetectability, condom use, testing, and more; the Health Initiative for Men's "GET***PrEP***ED" campaign—which provided gay and bisexual men information about the safety, availability, and efficacy of PrEP; and YouthCo's "PrEP works, Stigma Doesn't" Campaign.

The Sex You Want *is an exceptional campaign covering a range of health topics, including condoms, PrEP, HIV-treatment, and serosorting.*
bit.ly/2wDtYAJ

PrEP works, Stigma doesn't *is a campaign led by YouthCo in British Columbia.*
bit.ly/2MNbxmt

Furthermore, given that adherence to PrEP impacts the effectiveness of PrEP[39] as well as the importance of therapeutic antiretroviral adherence for people living with HIV,[40] community and public partnerships have also sought to support gay and bisexual men's biomedical adherence to both prophylactic and therapeutic antiretrovirals. For example, Vancouver Coastal Health's Maximally Assisted Therapy (MAT) program has sought to link people in Vancouver's downtown east side to a wide-variety of essential services and

resources, including daily antiretroviral drug dispensing.[41,42] MAT has been particularly effective at supporting individuals who are unstably housed, with evaluations showing that MAT participants were 4.76 times more likely to be >95% adherent than non-participants.[42]

The Ontario HIV Treatment Network. "Reminder Systems for People Living with HIV." 2015.
bit.ly/2yQWboB

Text messaging has also effectively been used by Canadian HIV clinics to provide individuals with adherence reminders.[43] According to the Ontario HIV Treatment Network's 2015 report on reminder systems for people living with HIV,[44] these and similar low-cost, easily scalable mobile health interventions have generally been shown to be effective.[45–48] This is particularly so when the messaging services are personalized and tailored for individual recipients.[44] Recent exploratory research has also shown that telehealth may be a feasible way to promote adherence to PrEP. [49]

Behavioural Prevention

Johnson et al. "Behavioural interventions to reduce risk for sexual transmission of HIV among men who have sex with men." Cochrane Review. 2008.
bit.ly/2ZWdT6l

While promoting biomedical prevention strategies is now added to the mission of many community-based programs, other behaviours—besides initiation and adherence—are also encouraged by communities aiming to reduce HIV incidence. Reviews examining the efficacy of these behavioural interventions suggest that they are generally effective, though it remains unclear which targeted behaviours (e.g., increasing condom and lube use, reducing sexual partner number, promoting seroadaptive behaviours) have the greatest impact on HIV and STI transmission.[50] Nevertheless, it is important that gay and bisexual men are aware that condoms are highly effective at preventing HIV transmission when used correctly and consistently with only a 4% failure rate due to condom slipping and breakage.[51] Proper use of lubricant and proper sizing of condoms can further increase their efficacy. Further, condoms have the added benefit of prevention of other STIs beyond HIV. Thus, It remains important to educate gay and bisexual men about the conditions in which condoms might provide optimal protection.

Education-Based Behavioural Interventions

Brennan et al. "Online Outreach Services Among Men Who Use the Internet to Seek Sex with Other Men in Ontario, Canada: An Online Survey." Journal of Medical Internet Research. 2015.
bit.ly/2YNjXRh

Much of these educational efforts now occur through online outreach programs—making sexual health education more accessible to gay and bisexual men. For example, HIV Edmonton's "HIV Tonight" campaign shows how programming specific to gay and bisexual men can promote safe sex and risk reduction using the internet. Their website encourages condoms and HIV testing, discusses how choosing oral sex over anal sex can reduce the risk for HIV, and provides an introduction to many of the basic terms and concepts used in HIV prevention today (e.g., PrEP, undetectable, Poz). Another noteworthy example of this approach is Projet Mobilise, which provides information on a comprehensive list of HIV prevention strategies—including those not yet available in Canada. Supplementing these static informational approaches, community-based organizations also conduct online sexual health outreach with the potential to effectively engage gay and bisexual men. However, interventions with staffing requirements are challenged by capacity issues which present a significant barrier to their success.[52]

Project Mobilise is an education campaign that provides information on a variety of HIV prevention strategies.
bit.ly/2KFB6Do

In addition to providing gay and bisexual men with the information they need to navigate and enjoy their sex lives, behaviour-focused interventions in Canada have also sought to help individuals understand their risk for HIV. For example, Health Initiative for Men's

"What's Your Number?" campaign uses a series of screening questions to help people assess how frequently they should be getting tested for HIV and what their level of risk for HIV infection is. Individuals can then sign up for reminder texts or emails which can help them follow-through on the information provided on the website. The basic message of these campaigns and interventions is that sex education can be sex positive particularly when the aim of such programs is to inform rather than coerce. Furthermore, these and other programs suggest that online evaluation and outreach has the potential to improve health behaviours and outcomes for gay and bisexual men.[52,53]

Many community-based organizations supplement their standard educational campaigns with one-on-one or group-based interventions which aim to reduce HIV risk behaviour using a combination of cognitive behavioural, mindfulness, and motivational interviewing therapies. Group-level educational interventions and comprehensive risk counselling services have shown to result in decreases in sexual risk and disease transmission.[54] Among several interventions developed for gay and bisexual Canadians, GPS – Finding Your Own Way (originally "Gay Poz Sex") is an eight-week multi-site sexual health peer-driven group program for HIV-positive gay and bisexual men that aims to (a) reduce the frequency of serodiscordant condomless anal sex, (b) help participants achieve viral load suppression, (c) encourage the use of pre-exposure prophylaxis among HIV-negative sex partners, (d) reduce loneliness, and (e) reduce sexual compulsivity.[55] In addition to the group-based GPS interventions taking place across Canada, GPS is also being piloted by Ryerson University's HIV Prevention lab as a one-on-one counselling program by the Health Initiative for Men, the Regional HIV/AIDS connection in London, the AIDS Committee of Toronto, MAX Ottawa, and the Infectious Disease Clinic of Ottawa Hospital.

In addition to individual-focused interventions, the Ontario HIV Treatment Network (OHTN) and other community organizations have also piloted couples-based HIV testing and counselling which seek to promote greater openness in discussing sex and HIV management. OHTN's program is based on the U.S. Centre for Disease Control's Testing Together program, which provides HIV counselling and STI testing to couples. Interventions promoting condom use in couples have generally shown some efficacy—particularly so in serodiscordant or non-exclusive relationships, albeit these interventions occurred prior to U=U and PrEP.[56] The potential for these "negotiated safety" interventions to help prevent HIV is notable given that between 32 and 78% of HIV transmissions occur between primary partners.[57,58] These interventions may be of particular value when the HIV-positive partner does not have an undetectable viral load, when the HIV-negative partner is not taking PrEP, or during the early phase of HIV infection when the virus remains undetected.

Melendez-Torres & Bonell. Systematic review of cognitive behavioural interventions for HIV risk reduction in substance-using men who have sex with men. International Journal of STD and AIDS. 2014.
bit.ly/2TpUVT6

Systematic reviews of the effect of therapeutic and educational interventions show that they have the potential to reduce incidence of condomless anal sex. However, the effects of many interventions have been shown to diminish over time with little difference observed between study and control arms after as little as 1 year.[59] Given the time and resource commitment required for these interventions, it is apparent that scaling them up as a front-line intervention can be challenging. Therefore, these interventions must be carefully targeted to include those who are currently experiencing a heightened level of risk for infection.

Education and therapeutic interventions targeting substance use have also been developed and implemented in order to curb harmful patterns of substance use. Examples of interventions combining educational and counselling-based approaches include RÉZO's "MonBuzz" campaign—which is a brief online intervention adapted to the realities of substance use and sexuality. Other interventions have also emerged to help interested individuals change their substance use behaviour. For example, medication assisted substitution therapy is regularly used in the treatment of substance use disorders. These programs are widely viewed as effective, particularly as a means of reducing mortality among individuals using opiods.[60–62] In many cases medication assisted therapy is the only viable option for treating substance use dependency. Similarly, contingency management (i.e., the use of financial incentives to reward specific behavioural outcomes) has also been increasingly leveraged to treat substance use disorders.[63]

Davis et al. A review of the literature on contingency management in the treatment of substance use disorders, 2009–2014," Preventative Medicine. 2016.
bit.ly/2M7ruEp

Rajasingham et al. "A Systematic Review of Behavioural and Treatment Outcome Studies Among HIV-Infected Men Who Have Sex with Men Who Abuse Crystal Methamphetamine," AIDS Patient Care and STDs. 2011.
bit.ly/2TiTUMq

Many gay and bisexual men struggle with addiction to methamphetamine—necessitating integrated care that accounts for the wide range of experiences and social positioning associated with use of this drug.[64–66] However, methamphetamine addiction is an active research area and advances are being made. Likewise, several programs have been tailored to address substance use among gay and bisexual men. For example, in British Columbia, the Vancouver Addictions Matrix Program (VAMP) offers a multi-week outpatient drug and alcohol treatment program for gay and bisexual men. Individuals can self-refer themselves into these programs and attend voluntarily. However, the time-requirements of these programs and the focus or requirement for abstinence can restrict participation. Recognizing these limitations, the ACT's Vibe program presents a variety of harm reduction, information-based, and counselling/support programs specifically tailored to the specific and individual needs of gay and bisexual men.

Other Behavioural Interventions

In addition to addressing sexual practices and substance use, behavioural interventions in Canada are also focused on catching diagnoses earlier to prevent passing on HIV and other STIs. Indeed, many clinics and community-based organizations across Canada promote HIV testing and help clients understand the benefits of discussing HIV with their sexual partners. Some clinics, such as the "Gay Zone Clinic" offer services and educational programming specifically designed for gay and bisexual men with the hope that providing culturally competent care will make it more enjoyable for men to visit these clinics. Reviews and meta-analyses evaluating the benefits of culturally competent care suggest that they may have a variety of beneficial effect[67]—particularly with regards to improving patient satisfaction.[68] While many of these tailored services are clustered in Canada's largest Metropolitan centres —where a higher density of gay and bisexual men live.[69] The AIDS Network of Hamiton, Halton, Haldimand, Norfolk, and Brant's "Men4Men Clinic" exemplifies how traditional clinic spaces (i.e., those not developed specifically for gay and bisexual men) and non-clinical LGBT venues (e.g., bathhouses, gay clubs, gay campgrounds) can be leveraged to create appropriate spaces sensitive to the needs of gay and bisexual men. Of course, due to the diversity of needs among gay and bisexual men, there is also a recognized need to provide services that are confidential and not explicitly designed for sexual minorities. While many clinics offer sexual health services, the BC Centre for Disease Control's "GetCheckedOnline" program provides a particularly novel example in which individuals (regardless of sexual orientation) can complete an online risk assessment in order to identify which tests an individual might need and thereafter generate a lab test requisition form in the privacy of

Horvat et al. "Cultural competence education for health professionals." Cochrane Review. 2014.
bit.ly/2YZwNrj

Beach et al. "Cultural competence: a systematic review of health care provider educational interventions." Medical Care. 2005.
bit.ly/2HbVVW7

their own homes. Clients then print and take their lab form to one of several non-descript locations across Southern British Columbia where they can confidentially undergo necessary screenings alongside other patients who could be visiting the lab for any number of other non-STI related health conditions and then receive their results confidentially online or via the phone. In a similar fashion, mobile testing services, such as the Hamilton AIDS Network's "The Van," provide confidential testing and health promotion services to individuals who might not feel comfortable entering a clinical setting or who do not have the ability to visit geographically fixed venues. In rural areas, pop-up testing events, such as the Men's Health Initiative's Prick program, provide much needed access to areas that would otherwise be without access to testing services.

UNAIDS "Prevention Gap Report" 2016.
bit.ly/2TIlp70

Structural Prevention

Structural interventions aim to reduce or eliminate systematic barriers to health through changes to policies, environments, and social norms. While interventions targeting structural stigma and other social barriers to health are difficult to implement due to their targeting of deeply rooted societal problems,[70] there is little doubt that systems-level structural change should be a core component of combination prevention. This need has been repeatedly highlighted in the work of Hatzenbuehler and others who have shown that structural sigma related to sexual orientation has numerous health consequences on gay and bisexual men.[71–73] Indeed, while the effects of structural-barriers are most clearly observed through international comparisons—with the majority of new incident HIV cases occurring in countries with high levels of inequality and few resources[74]—social determinants of health are widely recognized as serious challenges to the success of public health interventions in Canada as well.

Iskarpatoyoti et al. "Evaluations of Structural Interventions for HIV Prevention: A Review of Approaches and Methods." 2018.
bit.ly/31yoz8f

WHO. (2011). Rio Political Declaration on Social Determinants of Health.
bit.ly/31rVuyl

Health inequities experienced by Canadian gay and bisexual men are a clear indication of structural inequalities based on heterosexism—as are the differences in HIV transmission rates based upon classism, racism, and colonization. To address these barriers, it is increasingly apparent that Canada's public health sector and its funders must embrace structural prevention as a third and equal pillar of combination prevention. To do so, the sector will need to increase and systematize its support for programs which prioritize individual and collective rights, foster leadership and altruism, reduce stigma, improve access to harm reduction and health services, and provide tailored-care to key sub-groups of at-risk gay and bisexual men. Without such interventions, a combination prevention approach is not implementable.[74]

Given the breadth of potential programs captured under the "structural intervention" umbrella, Maslow's theory of human motivation provides a succinct rights-based approach rooted in the fulfillment of what he described as fundamental human needs.[75] Outlining these needs, Maslow describes five broad categories organized hierarchically: physiological (e.g., food, water, sleep, shelter), safety (e.g., person security, financial security, health and wellbeing, protection from injury and illness), social belonging (e.g., friendship, intimacy, family), self-esteem (e.g., sense of worth, self-respect, confidence, competence), and self-actualization (e.g., mentorship opportunities, skills utilization, ability to peruse goals and seek happiness). Regardless of the empirical utility of Maslow's theory development, the hierarchy of needs is a good framework for understanding the goals and outcomes of structural interventions.

Social Assistance

Meeting the most basic physiological needs, structural interventions such as food banks, shelters, and housing programs continue to be an important part of Canada's HIV response, especially when they are sensitive to and support the needs of people living with HIV. When tailored for HIV prevention, they may have a particularly robust effect. For example, Vancouver's Housing First program has been shown to improve clinical outcomes for people living with HIV.[76] More broadly, discrimination in employment and housing also pose significant concerns for sexual minorities. Partially addressing these needs, programs such as the AIDS Committee of Toronto's Income Tax Clinic and Employment ACTion program help individuals overcome structural barriers such as discrimination, heterosexism, and systemic disadvantage.

Harm Reduction

Strike et al. "Best Practice Recommendations for Canadian Harm Reduction Programs That Provide Service to People Who Use Drugs and Are at Risk for HIV, HCV, and Other Harms: Part 1." Toronto: Working Group on Best Practice for Harm Reduction Programs in Canada; 2013.
bit.ly/2YAcCoA

Additionally, other programs across Canada are designed to help individuals meet their safety needs by increasing access to prevention and harm reduction technologies. For instance, organizations—such as Blood Ties Four Directions Centre in the Yukon—provide harm reduction supplies (e.g., condoms, safe crack kits, naloxone kits, safe injection equipment) to those in need with the hopes of addressing behaviours that increase one's risk for HIV without relying solely on abstinence-only interventions. Supporting these programs Canada's working group on harm reduction has developed best practices guidelines for use by community-based organizations.[77,78] However, despite the documented benefits of risk reduction programs,[79–81] local policies are not always supportive of harm reduction efforts, even when official policies might lend support to these programs on face value.[82] For instance, needle exchange programs are inhibited by limits placed on the number of syringes that can be exchanged, the lack of sufficient geographic coverage of exchange programs, restricted hours of operation, reluctance among some pharmacists to sell syringes to suspected injection drug users, and the lack of access to needle exchange programs in high-risk settings, such as prisons.[83] Likewise, there continues to be resistance to supervised consumption sites, such as Vancouver Coastal Health's Insite program, which are known to reduce an individual's risk for HIV transmission and overdose. The B.C. Centre for Substance Use has issued operational guidelines for supervised consumption services.[84] Laws criminalizing stigmatized behaviours and accompanying policies thus pose a significant barrier to achieving structural change. Given the significant power-unbalance, cooperation across all levels of community and government are needed to overcome these.

Healthcare Access

Hyshka et al. "Harm reduction in name, but not substance: a comparative analysis of current Canadian provincial and territorial policy frameworks." Harm Reduction. 2017.
bit.ly/2TiMHfn

The Gay Men's Mental Health Summit was hosted for the first time in 2018 by the Gay Men's Sexual Health Alliance.
bit.ly/2MPXnRq

While the battle for harm reduction services is ongoing, there is also a pressing need to improve gay and bisexual men's access to basic health services. Indeed, access to healthcare and social services is a fundamental structural problem as it is outside the control of most individuals and even many community-organizations. Recent conference proceedings from the 2018 Gay Men's Mental Health Summit,[85] have identified key action items relevant to health care access for gay and bisexual men. Three such items were (1) to improve access to mental health care, (2) to address the impact that early experiences of homophobia has on gay and bisexual men's mental health, and (3) to integrate HIV and other health services in order to promote a holistic vision of gay and bisexual men's health.[85] Nationwide, improving access to mental health services has been a key focus of organizations. For example, in addition to their traditional counselling services available in clinics and bathhouses the

AIDS Committee of Toronto facilitates a "buddy program" that links individuals living with HIV to trained volunteers who can provide emotional support for up to 3 hours per week. Similarly, MAX offers intake and referral services to link gay and bisexual men with appropriate local mental health care services. Similarly, Vancouver Coastal Health's Prism program also helps triage healthcare referral services by connecting gay and bisexual men with LGBT2Q+ groups, counsellors, and other resources. Health Initiative for Men's "Take Time for Your Mind" website provides information about mental health, an overview of the organization's mental health programs, and a "Find A Practitioner" tool that allows individuals to find the services and fee schedules that are right for them.

Take Time for Your Mind" by Vancouver's Health Initiative for Men
bit.ly/2ThDUue

When it comes to other general health services, barriers for gay and bisexual men include concerns with approachability (i.e., not all gbMSM feel comfortable interacting with traditional health systems), acceptability (i.e., not all prevention strategies are broadly accepted by gbMSM), availability (i.e., not all gbMSM have access to biomedical HIV prevention), affordability (i.e., not all gbMSM can afford treatment), and appropriateness (i.e., not all healthcare services are appropriate for marginalized persons). Levesque, Harris & Russel (2013), conceptualize these five barriers as core dimensions of patient-centred health systems access and notes that they are central to the impactful delivery combination prevention and care.[86] Because individuals and community-groups rarely have the power to shape healthcare delivery systems, or operate at the mercy of funding agencies, significant collaboration between municipal health agencies and community-groups is needed to achieve improvements in healthcare access and utilization.

Mitra et al. "Facilitators and barriers to health care for lesbian, gay and bisexual (LGB) people." OHTN. Rapid Review Series. 2014.
bit.ly/2k7u38N

Levesque et al. "Patient-centered access to healthcare: conceptualizing access at the interface of health systems and populations." Equity in Health. 2013.
bit.ly/2izZlFY

Stigma Reduction

This broader conceptualization of healthcare access shows that while improving access to all the services outlined above is obviously a good first-step to addressing the structural barriers facing gay and bisexual men, there is also a need to address the more intangible barriers that prevent gay and bisexual men from fulfilling their needs. This includes eliminating barriers that emerge from the criminalization of drug use[87] and the criminalization of HIV[88–91] but extends far broader and deeper than these state-sanctioned laws and policies. The subtle and insidious transmission of negative ideas regarding sexual and gender minorities, people who use drugs, ethnoracialized people, people living with HIV, and many others has been regularly shown to be an important barrier to ending HIV transmission.[92–96] Organizations such as AIDS Action Now have long sought to fight HIV stigma in Canada and in recent years the CBRC's #ResistStigma campaign has sought to highlight the role that stigma plays in the lives of gay and bisexual men. An assessment of these efforts within the context of Facebook show that discussion of stigma online have increased as a result.[97] However, while mass media campaigns have been shown to reduce stigma, the long-term effects of these interventions on improving mental health and changing attitudes has not been fully evaluated.[98,99] Yet, throughout the world, a general trend towards increasing acceptance of sexual minorities has been documented[100]—suggesting that past efforts to improve the visibility and standing of minorities have been effective. Among these efforts, we note how legislative and policy-based protections for sexual and gender minorities as well as school-based programs (e.g., Gay-Straight alliances) have greatly expanded the protections afforded to gay and bisexual men.[101] Leveraging this momentum to further reduce and eliminate stigma from our culture will benefit national, regional, and local combination prevention efforts.

DeBeck et al. "HIV and the criminalisation of drug use among people who inject drugs: a systematic review." Lancet HIV. 2017.
bit.ly/2MPYXCQ

Galletly et al. "Conflicting Messages: how criminal HIV disclosure laws undermine public health efforts to control the spread of HIV." AIDS and Behaviour. 2006.
bit.ly/2ThDF2i

MacAulay & Wang "#ResistStigma How do we get there? A Scoping Review." Community Based Research Centre for Gay Men's Health. 2016.
bit.ly/2KqAsdQ

Population Specific Programming

McClain et al. "Creating Welcoming Spaces for Lesbian, Gay, Bisexual, and Transgender (LGBT) Patients: An Evaluation of the Health Care Environment." Journal of Homosexuality. 2016.
bit.ly/31xYQ2L

Martos et al. "Lesbian, gay, bisexual, and transgender (LGBT) health services in the United States: Origins, evolution, and contemporary landscape." PLOS One. 2017.
bit.ly/2M8N2AH

Perhaps one of the most obvious reasons to address stigma is the fact that existing healthcare services generally align themselves primarily with the needs of mainstream cis-gender, heterosexual, middle-class patients. Indeed, while other service-oriented sectors have recognized the need to develop tailored and targeted products for key minority groups —public health and medicine has largely insisted on a one-size-fits all approach that requires consumers and providers to fall in-line with established guidelines and protocols. Tailored services which have emerged to fill gaps in care for gay and bisexual men have tended to buck this trend—a necessity emerging from the medical sector's historical unwillingness to deal with HIV.[102] In turn, providing services specifically tailored to gay and bisexual men and constituent sub-populations helps to reduce barriers to healthcare access.[103,104] Indeed, studies of health service access and utilization show that real and perceived negative attitudes towards this population act as a significant barrier—causing gay and bisexual men to delay or avoid seeking services or to not disclose their sexual orientation.[105] Furthermore, many services tailored for other key populations (e.g., people who are homeless or people who use drugs) may not be well suited for all gay and bisexual men. Cultural beliefs, ethnicity, education, income level, geographic location, immigration status, age, and being trans or non-binary can all act as barriers to care—thus necessitating service models that are both broadly inclusive and adapted to the specific needs of key subgroups.[103,105] However, even though interventions and programs have been tailored for gay and bisexual men, many of these services focus only on sexual health.

The Native Youth Sexual Health Network is an indigenous youth organization that works throughout the United States and Canada to address sexual and reproductive rights and social justice.
bit.ly/29QlPyj

Providing population specific programming for gay and bisexual men not only addresses their safety needs by enhancing access to therapeutic and preventative services, but it also provides fulfillment of higher social and personal needs such as self-esteem and self-actualization. Take for instance the many programs tailored for Canadian youth and young adults, such as YouthCo's Mpowerment program, the youth Services Bureau of Ottawa's "Sexual Health Youth Advisory Group (SHAG)", ACT's Positive Youth Outreach Program and the Totally Outright Program. Each of these programs provides opportunities for peer-leadership, self-exploration, and social bonding—factors which can help build resilience among gay men and help them overcome structural barriers such as heteronormativity. In the same way, programs tailored to other key groups such as older men, ethnoracialized men, and immigrants/newcomers can help these communities build resilience and social capital which can be leveraged to overcome systematic disadvantages historically faced by these groups. For indigenous gay and bisexual men, this includes the intergenerational and continually reinforcing traumas that are produced and reproduced through colonial and imperial social conditions.[106,107] Addressing these challenges will undoubtedly require investment in and partnership with organizations working at the intersection of multiple identity-groups. Examples of such efforts include Egale's "Two Spirits, Once Voice" campaign which seeks to bolster supports for individuals that identify as both sexual minorities and indigenous peoples.

PATIENT-PROVIDER INTERACTIONS

In the 2014/15 Sex Now Survey approximately one-third of respondents had not told a primary care provider that they have sex with men. This statistic likely represents two phenomena: First, many gay and bisexual men do not frequently interact with healthcare providers in ways that necessitate or facilitate sexual orientation disclosure. Second, those who do have primary care providers may not feel comfortable enough or feel that it is important enough to disclose this information.

Making Safer Spaces for Gay and Bisexual Men

To address the latter scenario, providers can make safer spaces for gay and bisexual men by including affirming posters, magazines, clinic signage, and reading materials. They can train staff to be friendly, open, respectful, non-judgemental, and to use appropriate language when interacting with individuals. This includes using patient's preferred pronouns and avoiding heteronormative assumptions about individuals based on their gender. Intake forms can also demonstrate acceptance and openness by allowing participants to affirm their sexual orientation and gender. Likewise, these forms can convey the respect that the provider has for patient-privacy and confidentiality. Taking such steps can signal to individuals that they are in a safe place and remove the burden from patients who might otherwise feel uncomfortable or awkward bringing up their sexual health. Clinicians and staff can communicate openness by the way they interact with patients: expressing confidence and competence when discussing sexual health, using appropriate and inclusive language, conveying interest, and by expressing appropriate body language. By communicating openness and acceptance in a variety of ways, clinics can help facilitate a space where individuals can trust that they are receiving appropriate care.

Trust and Consent: The Foundation for Patient-Provider Relationships

The foundation of culturally appropriate care is trust and consent. While, trust can be facilitated by creating a safe and welcoming space for gay and bisexual men, it can also be promoted by establishing consent-based relationships with patients. When it comes to gay and bisexual men's health, asking participants for permission to talk about certain health areas is important. Questions such as, "Are you comfortable with discussing your sexual health?" can also communicate openness. When doing so, doctors should use neutral language and avoid assumptions about their patients. Not all men who have sex with men are the same. Taking a sexual health history is an important step prior to making prescriptions. Doing so helps avoid "overprescribing," which may inadvertently make patients feel uncomfortable or stigmatized.

Taking a Sexual History

When taking a sexual history, providers can ask whether individuals have sex with men, women, or both as they engage with the five "P"s: (1) Partners, (2) Practices, (3) Protection from STIs, (4) Past History of STI's, and (5) Family Planning. Obviously, some of these are more relevant to gay and bisexual men than others. Assessing each area can help you better understand your patients.

bit.ly/2HTT30B

Screening, Brief Intervention, and Referral to Treatment (SBIRT)

In many cases, sexual health is associated with patients' mental health and substance use behaviour. For many gay and bisexual men these are sensitive issues. By establishing trust and consent, providers can better screen for, intervene in, and make referrals for health services. As an evidence-based practice, SBIRT (pronounced "Es-Burt") is one strategy whereby providers can facilitate appropriate screenings, interventions, and referral to services while balancing the tension between time-restraints placed on providers and the desire to deliver holistic care. *Visit bit.ly/2tjKnab for more information.*

bit.ly/2Z5wf3b

"...it is increasingly apparent that Canada's public health sector and its funders must embrace structural prevention as a third and co-equal pillar of combination prevention. To do so, the sector will need to increase and systematize its support for programs which prioritize individual rights, foster leadership and altruism, reduce stigma, improve access to harm reduction and health services, and provide tailored-care to key sub-groups of at-risk gay and bisexual men. Without such interventions, a combination prevention approach is not implementable."

CONCLUSION

Under the umbrella of combination prevention falls a large number of different yet complementary strategies. Developed originally as a plan for HIV prevention in developing countries, combination prevention is now the foundation of HIV prevention among gay and bisexual men. However, in order to fully realize its potential, combination prevention strategies must better account for local and personal context. Doing so will require not only innovation in how services are delivered, but also in the types of services that are prioritized.[108] These decisions are best made by those most familiar with contexts, and as such, the recommendation based on this review may be of varying utility. Community-based HIV leadership is thus central to the future of HIV prevention.

McKenney et al. "HIV Risk Behaviours and Utilization of Prevention Services, Urban and Rural Men Who Have Sex with Men in the United States: Results from a National Online Survey." AIDS and Behaviour. 2018.
bit.ly/2MSLQAM

Underscoring the need for tailored biomedical, behavioural, and structural interventions, geographic and social barriers to healthcare access and programming have proven to be legitimate obstacles to our achieving Canada's goals for ending HIV transmission. Indeed, rural and urban health care, while having much in common, require fundamentally different responses.[109–111] For example, rural and urban health services must take different approaches to balancing tension between affirmation and anonymity with both holding firm to a commitment to reduce (cis)heteronormativity in our healthcare system.[112] While many urban centres have community-based organizations which facilitate culturally competent care, men living in rural areas are usually served by either university programs or municipal public health units. Adapting combination prevention strategies for these unique settings is absolutely essential.[113] Considering these sorts of challenges, national coordinating efforts to address HIV must learn to provide sufficient leeway for adapting combination prevention to the local context. This includes providing the funding needed to support the scale-up, spread, and adaptation of evidence-based programs.

Furthermore, the diversity of experiences in Canada highlights the need for services that are tailored and targeted for the unique experiences of specific subgroups of men who have sex with men. This includes the use of research and surveillance data to inform which populations require the greatest investment. The sector as a whole must come to terms with the reality that gay and bisexual men are not a uniform or homogeneous population. No monolithic "gay community" exists.[114,115] Making sure that individuals have access to services that acknowledge these differences is a top priority which will require widespread commitment to address the needs of key community groups.[116,117] Within the Canadian and international context there are many glowing examples of successful population-specific programming—some aiming to increase inclusivity and others honing in on the unique needs of key subgroups.[103] These efforts are strongly supported by core combination prevention theories such as minority stress theory, life-course theory, and intersectionality theory.[118]

Tooley. "Re-centering our approach to gay and bisexual men's health and HIV prevention." CATIE. 2011.
bit.ly/2JdF4FK

Closely related to the idea of tailoring services to meet the needs for key subgroups of gay and bisexual men, there is also a need for a broader more general application of combination prevention. School-based interventions, for example, provide an opportunity to broaden the reach of public health messages by engaging those who may not publicly disclose their sexuality—particularly during critical periods of identity formation, social development, and sexual exploration. Moreover, while these broad reaching programs have not been widely implemented,[36,119] they potentially provide a unique opportunity

Hawkins et al. "Understanding tailoring in communicating about health." Health Education Research. 2008.
bit.ly/2yRBxok

Anderson-Carpenter et al. "Associations between Perceived Homophobia, Community Connectedness, and Having a Primary Care Provider among Gay and Bisexual Men." Sexuality Research and Social policy. 2018.
bit.ly/2KCuy8n

to address systematic structural barriers such as heteronormativity and homophobia. As such, increasing collaboration between the health and education sector, while difficult, may prove to be an essential strategy to overcoming syndemic factors that drive transmission.[120] Such efforts should directly address homophobic and heteronormative attitudes which give rise to stigma and discrimination against sexual minorities.

Indeed, recognizing that syndemic factors such as poor mental health, experiences of trauma, and challenges with substance use underlie many incident cases of HIV highlights the importance of addressing these upstream determinants of health. Furthermore, they illustrate the clear and pressing need for a dramatic expansion of mental health and substance use services and health promotion.[121] Such efforts to address these factors should include reforms to Medicare and insurance programs to ensure gay and bisexual men's access to their mental health care; but should also include efforts that aim to build social support and address loneliness.

Thornicroft et al. "Evidence for effective interventions to reduce mental-health-related stigma and discrimination." Lancet. 2016.
bit.ly/2OB4uyr

Other programs that provide opportunities for leadership, self-actualization, and social connection are likewise useful in reducing stigma and ending perceived or experienced discrimination. These sorts of interventions are often overlooked by funders—perhaps due to their upstream preventive focus with less easily validated evaluation of impact on proximal factors to HIV transmission. Nevertheless, these difficult-to-assess programs are essential to reshaping the social environment and eliminating structural barriers. Certainly, there is a clear need to provide evidence and support for these programs—something academic researchers can help provide—but lack of empirical evidence alone is not a sufficient justification to neglect these efforts. Observed disparities among not only gay and bisexual men, but among key subgroups, should alone be enough to prompt action. Yet, despite ample evidence for the harmful impacts of health and social inequalities[12,93], deficit-based research has done little to spur widespread change in program implementation. In addition to building analytic and program evaluation capacity within community organization, more effective collaboration and utilization of research resources and public health surveillance data will help address the knowledge-action gap.[98,99]

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Given these realities, it is easy to recognize that combination prevention holds the key to ending HIV transmission among gay and bisexual men. However, as currently implemented in Canada, it appears that combination prevention strategies rely too heavily on biomedical and behavioural interventions[122–124]—leading to an exponentially increasing cost for each additional averted infection.[125]

PARTNER, PRIORITIZE, PACKAGE, PUSH & PULL:

Making Safer Spaces for Gay and Bisexual Men

Combination prevention is not generally conceptualized as a program that can be carried out by a single group or organization. Yet, supporting combination prevention is an integral part of the work that non-profit and community-based organizations undertake. When conceptualizing one's role in the combination prevention of HIV among gay and bisexual men, several principles or themes can help public health and community leaders better participate in regional combination prevention activities. These are: (1) Partnerships, (2) Priorities, (3) Packaging for Push, and (4) Promotion for Pull.

Partnerships. Without collaborative partnerships with federal and provincial ministries, health authorities, and care providers, community-based organizations cannot provide the range of services that constitute combination prevention. Likewise, working with academic researchers would improve most organizations' capacity to conduct evaluations and critical inquiries that can inform program decisions and help secure additional funding. Leveraging professional networks to organize partnerships between these key actors can help ensure that efforts are unified under a single combination prevention strategy. This can also help raise the awareness of issues affecting gay and bisexual men within organizations not solely focused on our communities.

Priorities. In establishing a region's unifying combination prevention strategy, organizations will need to establish priorities for determining which activities and programs will receive the most attention and resources. As highlighted in this review, it is clear that a broad range of activities fall under the combination prevention umbrella. Researchers can assist organizations by helping them to evaluate which programs and activities are having the greatest overall and relative impact. The democratization and community-based ownership of research and surveillance data can be used to inform decisions within an evidence-based framework. Doing so will help stakeholder determine how resources are allocated and provide the rationale for organizational activities that are supported by external funders.

Packaging for Push. One of the key benefits of operating within a combination prevention framework is the opportunity to package various interventions together. For instance, leadership and capacity building programs such as Totally Outright and Investigaytors leverage a range of resources to build personal and community resiliency while improving participant's understanding of sexually transmitted infections. In public health settings, combining screens for sexually transmitted infections with a referral process for pre-exposure prophylaxis can help reduce STI incidence by eliminating asymptomatic cases and can help target PrEP to those who are at risk for HIV. These combination efforts can then be offered to patients by care providers—a knowledge translation strategy commonly referred to as "push."

Promotion for Pull. On the flip side, social networks and the media can also be leveraged to promote "pull" for health services. An essential step to creating pull is identifying services and providers and making them known to target populations. By utilizing existing community-infrastructure—including formal health service organizations and opinion leaders—regional combination prevention strategies can engage the individuals and populations they aim to serve.

"...as currently implemented in Canada, it appears that combination prevention strategies rely too heavily on biomedical and behavioural interventions—leading to an exponentially increasing cost for each additional averted infection. By better accounting for the syndemic and structural barriers that give rise to health-related disparities in the first place, public health and community leaders will be better equipped to end the HIV epidemic."

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Community-Based Research Centre (CBRC) promotes the health of gay men through research and intervention development. We are inclusive of bisexual and queer men (cis and trans) and Two Spirit people.

CBRC's core pillars—community-led research, knowledge exchange, network building, and leadership development—position the organization as a thought leader, transforming ideas into actions that make a difference in our communities.

CBRC was incorporated in 1999 and is a non-profit charitable organization. Our main office is located in Vancouver, British Columbia, and we also have satellite offices located in Edmonton, Toronto, and Halifax.

CBRC's projects and initiatives strengthen the health of gay, bisexual, and queer men (cis and trans) and Two-Spirit people in Canada:

- Community-based research: *Sex Now, Investigaytors*
- Knowledge exchange: *Summit, CBRC.net*
- Network building: *Advance, The Network*
- Leadership development: *Pivot, Totally Outright*
- Campaigns and Initiatives: *Sex Ed is Our Right, Check Yourself*

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